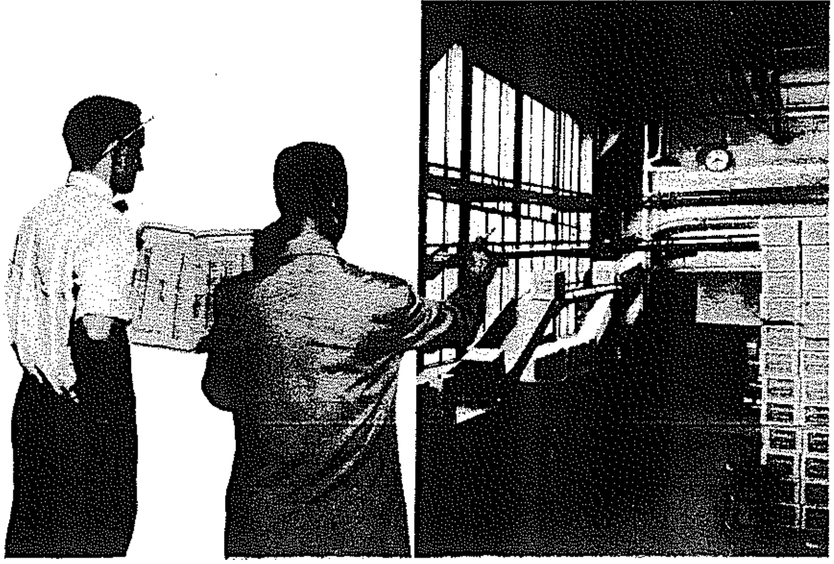

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R57-31

Handy ruler-and-pencil computing graph helps you plan best production performance . . . control belts for top efficiency . . . design new conveying systems

This foldout chart speedily answers your

Processing-Conveyor Problems

RAYMOND R. HAUGH
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CHANGES on processing-conveying belts in your plant will, of course, have a prime effect on your production-line efficiency.

Therefore, it's vital that you take into account all variables when modifying presently installed systems, or designing new ones.

This led to our drafting of a quick and easy-to-use processing conveyor belt computer—presented in the accompanying foldout.

It can be simply and effectively employed to:—

1. Plan future production schedules.

2. Help operator of conveying system to control or adjust belts for maximum efficiency.

3. Enable the plant engineer to determine, quickly and accurately, the variables that enter into the design of a new conveying system.

Our nomograph comprises 15 logarithmic scales (A to O). Its operation involves seven overlapping steps—each comprising three variables, two known and one unknown.

The first two steps cover production-conveyor equipment data, such as length, width, and speed of the belt.

Dealt with in the next four steps is thickness of product on the belt and such other variables as weight per cu. ft., specific heat, and temperature rise.

Then the final Step 7 shows relationship between total Btu's added to product, lb. of 100 psi steam required to produce this heat, and boiler horsepower required at 212F.

Chief advantage of the chart—as in our food thermal computers for heating and cooling (FE Oct., p. 47, and Jan., p. 134)—is that a plant manager can see at a glance the effect each factor has on the others. And he can shift variables with no time-consuming calculations.

Step-Wise Procedure Detailed

Here's the seven-step technique—illustrated on our chart by dotted-line examples—for applying this computer:

Step 1: Starting at left on chart, draw a line through usable length of belt in ft. (50 on Scale A) and width of conveyor (4 ft. on Scale B). Total usable sq. ft. of conveyor is point of intersection with Scale C (200).

Step 2: Join Scale C to Scale D (time product is on belt) with a similar line. The reading is 30 min. Next, extend the line to Scale E (usable area in sq. ft. per hr.). This reading is 400.

Step 3: Place straight-edge to connect Scale E and Scale F (thickness of product on belt), our example being 3 in. Then cu. ft. of product handled per hr. is revealed (on Scale G) as 100.

Step 4: Link Scale G through Scale H (weight of 1 cu. ft. of product, 40 lb.) to Scale I, where lb. handled hourly is found to be 4,000.

Step 5: A line run from Scale I to Scale J (specific heat of material, 0.5) is now extended to give Btu.'s required per deg. F. per weight (lb.) per hr. (2,000 on Scale K).

Step 6: Next, hook Scale K to Scale L (temperature rise in product, 50F.) to get total Btu.'s required per hr. (100,000 on Scale M).

Step 7: Draw line through Scale M to Scale N (efficiency of system, 50%) and get lb. of 100-psi. steam required on Scale O (225). Opposite this value (on Scale O) will be found the number of boiler horsepower (6) required at 212F.

If efficiency of unit is sought, you work backward. Here, the lb. of 100-psi. steam used per hr., or boiler horsepower at 212F. must be known. Marking this point on Scale O, draw line back to total heat required by the product on Scale M. Efficiency is where this line intersects Scale N.

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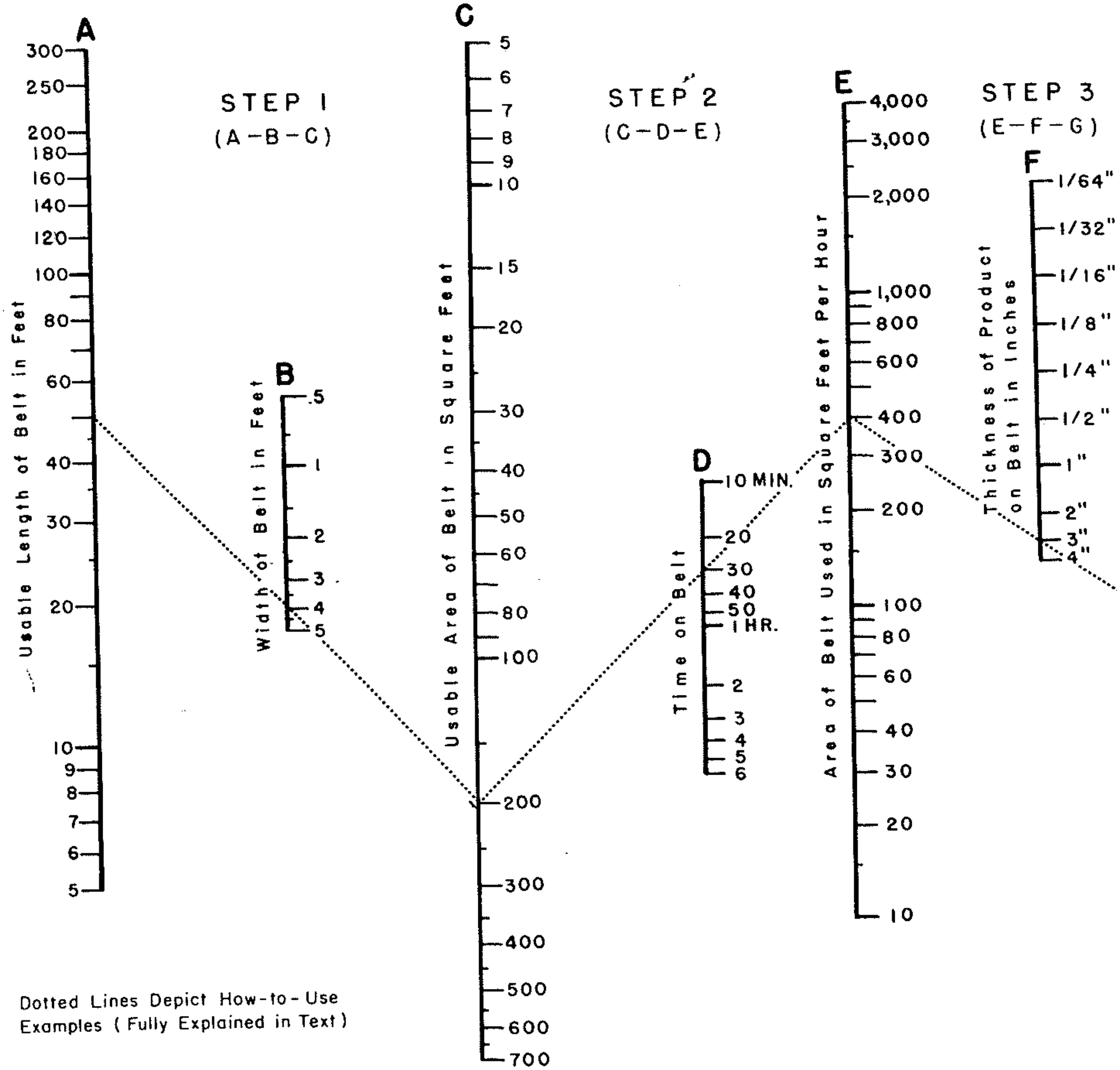
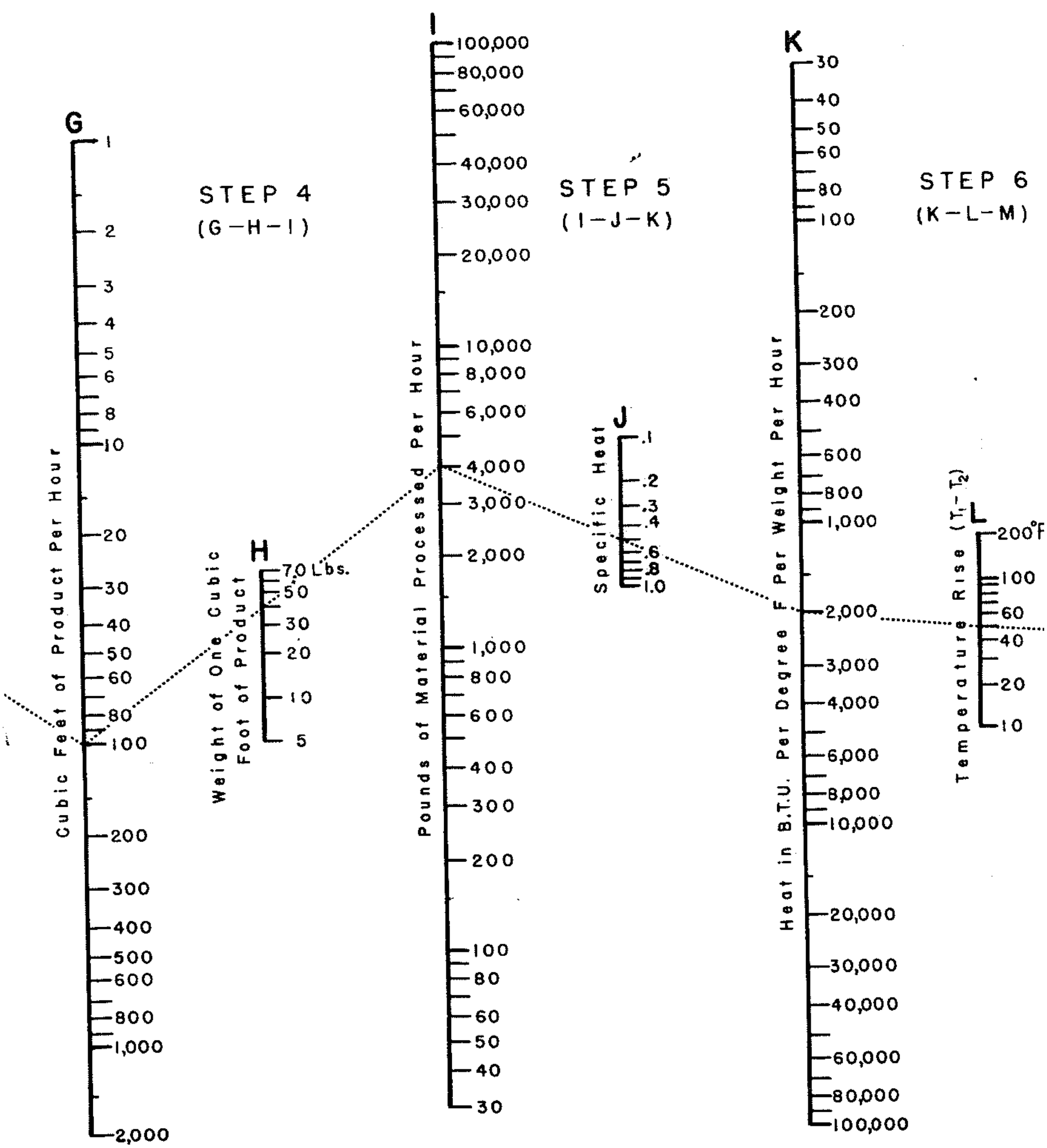
COMPUTER FOR



Dotted Lines Depict How-to-Use Examples (Fully Explained in Text)

QUICK PROCESSING-CONVEYOR CALCULATIONS



R CALCULATIONS